

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

- 1 1. (previously presented) A method of operating a mobile node having a network
2 layer and a plurality of network interfaces, each with a respective device driver, the
3 method comprising the steps of:
4 transmitting communications from the network layer to any of the network
5 interfaces by way of a multi-interface driver capable of communication with the
6 respective device driver corresponding to each respective network interface; and
7 switching from a first one of the network interfaces to a second one of the
8 network interfaces by changing the one of the plurality of device drivers with which the
9 multi-interface driver communicates, while hiding the switching from the network layer,
10 wherein the switching is hidden from the network layer using a virtual interface, the
11 virtual interface presenting the appearance of always being an active interface to the
12 network layer regardless of which of the network interfaces is being used at a given time.
- 1 2. (cancelled)
- 1 3. (currently amended) The method of claim 1, wherein data packets to be
2 transmitted by the mobile node are addressed to the virtual interface, wherein the multi-
3 interface driver intercepts packets addressed to the virtual interface provides a source
4 address to the network layer to be used in data packets transmitted by the mobile node
5 and instead provides the packets to the second one of the network interfaces.
- 1 4. (original) The method of claim 1, further comprising:
2 selecting the second one of the network interfaces, based on a signal strength of
3 each network interface and a user priority assigned to each network interface.

1 5. (currently amended) A method of operating a mobile node, comprising the steps
2 of:
3 identifying at least two available interfaces for communications by the mobile
4 node;
5 determining a plurality of characteristics of each of the network interfaces,
6 wherein the characteristics for each network interface include a signal strength value for
7 the network interface and a user priority value indicative of a preference of a user of the
8 mobile node for the network interface relative to other network interfaces;
9 selecting one of the network interfaces based on the characteristics of the
10 respective network interfaces, wherein a weight applied to the user priority value for each
11 network interface depends on the respective signal strength for the network interface; and
12 communicating by way of the selected network interface.

1 6. (currently amended) ~~A method according to~~ The method of claim 5, wherein the
2 mobile node is communicating by way of a current network interface connection other
3 than the selected network interface, the method further comprising:
4 establishing a connection between the mobile node and the selected network
5 interface; and
6 maintaining the current network interface connection until after the connection
7 between the mobile node and the selected network interface is established.

7. (cancelled)

1 8. (previously presented) The method of claim 5, wherein:
2 the mobile node is currently communicating by way of a current network interface
3 connection, and
4 the score is calculated by applying a higher weight coefficient to the signal
5 strength of the current network interface connection than a weight coefficient applied to
6 the signal strength of any other available network interface.

9. (cancelled)

1 10. (previously presented) The method of claim 5, wherein a weight coefficient of
2 zero is applied to the user priority value for each network interface having a signal
3 strength below a respective threshold value for that network interface.

1 11. (original) The method of claim 10, wherein:
2 the mobile node is currently communicating by way of a current network interface
3 connection, and
4 the threshold value for the current network interface connection is lower than the
5 threshold value for other network interfaces.

1 12. (original) The method of claim 1, further comprising:
2 automatically selecting the second network interface based on predefined criteria;
3 displaying an identification of the automatically selected interface;
4 receiving a manual override instruction from a user identifying a selection of the
5 second network by the user; and
6 switching to the network selected by the user.

1 13. (withdrawn) A method of operating a mobile node having an IPSec layer,
2 comprising the steps of:
3 establishing an IPSec session between the mobile node and a virtual private
4 network/IPSec gateway by way of a first network;
5 switching from the first network to a second network without disturbing the IPSec
6 session, the switching being effected using mobile IP at a lower layer than the IPSec
7 layer; and
8 hiding the switching from the IPSec layer by providing a fake MAC layer address
9 of a default router to the IPsec layer, and rewriting MAC layer headers in incoming and
10 outgoing packets in an intermediate driver with correct MAC layer addresses.

1 14. (previously presented) A mobile node comprising:
2 a plurality of network interfaces, each with a respective device driver;
3 a virtual interface;

4 a network layer;
5 a multi-interface driver capable of communication with each network interface by
6 way of the respective device driver for that network interface, the multi-interface driver
7 handling communications from the network layer to any of the network interfaces;
8 the multi-interface driver switching from a first one of the network interfaces to a
9 second one of the network interfaces by changing the one of the plurality of device
10 drivers with which the multi-interface driver communicates, while hiding the switching
11 from the network layer, wherein the switching is hidden from the network layer using the
12 virtual interface, the virtual interface presenting the appearance of always being an active
13 interface to the network layer regardless of which of the network interfaces is being used
14 at a given time.

1 15. (cancelled)

1 16. (currently amended) The mobile node of claim 14, wherein data packets to be
2 transmitted by the mobile node are addressed to the virtual interface, wherein the multi-
3 interface driver intercepts packets addressed to the virtual interface provides a source
4 address to the network layer to be used in data packets transmitted by the mobile node
5 and instead provides the packets to the second one of the network interfaces.

1 17. (original) The mobile node of claim 14, further comprising:
2 means for selecting the second one of the network interfaces, based on a signal
3 strength of each network interface and a user priority assigned to each interface.

1 18. (currently amended) A mobile node, comprising:
2 at least two available network interfaces for communications by the mobile node;
3 interface detection means for determining a plurality of characteristics of each of
4 the network interfaces, wherein the characteristics of each network interface include a
5 signal strength value for the network interface and a user priority value indicative of a
6 preference of a user of the mobile node for the network interface relative to other network
7 interfaces;

8 means for selecting one of the network interfaces based on the characteristics of
9 the respective network interfaces, wherein a weight applied to the user priority value for
10 each network interface depends on the respective signal strength for the network
11 interface;

12 wherein the mobile node communicates by way of the selected network interface.

19. (cancelled)

1 20. (original) The mobile node of claim 18, wherein the selecting means includes
2 hysteresis.

1 21. (withdrawn) A mobile node, comprising:
2 a network layer;
3 an IPSec driver below the network layer;
4 an intermediate driver below the IPSec driver;
5 at least one network interface to and from which the intermediate driver sends and
6 receives packets,
7 wherein the intermediate driver includes means for switching from a first network
8 to a second network, without disturbing an ongoing IPSec session, the switching being
9 effected using mobile IP at a lower layer than the IPSec layer, and
10 the intermediate driver hides the switching from the IPSec layer by providing a
11 fake MAC layer address of a default router to the IPsec layer, and rewrites MAC layer
12 headers in incoming and outgoing packets with correct MAC layer addresses.

1 22. (previously presented) A computer readable medium encoded with computer
2 program code, wherein, when the code is executed by a processor, the processor performs
3 a method of operating a mobile node having a network layer and a plurality of network
4 interfaces, each with a respective device driver, the method comprising the steps of:
5 transmitting communications from the network layer to any of the network
6 interfaces by way of a multi-interface driver capable of communication with the
7 respective device driver corresponding to each respective network interface; and

8 switching from a first one of the network interfaces to a second one of the
9 network interfaces by changing the one of the plurality of device drivers with which the
10 multi-interface driver communicates, while hiding the switching from the network layer,
11 wherein the switching is hidden from the network layer using a virtual interface, the
12 virtual interface presenting the appearance of always being an active interface to the
13 network layer regardless of which of the network interfaces is being used at a given time.

1 23. (currently amended) A computer readable medium encoded with computer
2 program code, wherein, when the code is executed by a processor, the processor performs
3 a method of operating a mobile node, comprising the steps of:

4 identifying at least two available network interfaces for communications by the
5 mobile node;

6 determining a plurality of characteristics of each of the network interfaces,
7 wherein the characteristics of each network interface include a signal strength value for
8 the network interface and a user priority value indicative of a preference of a user of the
9 mobile node for the network interface relative to other network interfaces;

10 selecting one of the network interfaces based on the characteristics of the
11 respective network interfaces, wherein a weight applied to the user priority value for each
12 network interface depends on the respective signal strength for the network interface; and

13 communicating by way of the selected network interface.

1 24. (withdrawn) A computer readable medium encoded with computer program code,
2 wherein, when the code is executed by a processor, the processor performs a method of
3 operating a mobile node having an IPSec layer, comprising the steps of:

4 establishing an IPSec session between the mobile node and a virtual private
5 network/IPSec gateway by way of a first network;

6 switching from the first network to a second network without disturbing the IPSec
7 session, the switching being effected using mobile IP at a lower layer than the IPSec
8 layer; and

9 hiding the switching from the IPsec layer by providing a fake MAC layer address
10 of a default router to the IPsec layer, and rewriting MAC layer headers in incoming and
11 outgoing packets in an intermediate driver with correct MAC layer addresses.

1 25. (withdrawn) A method of selecting a Wi-Fi network from a plurality of Wi-Fi
2 networks, each Wi-Fi network having an associated ESSID, the method comprising the
3 steps of:

4 receiving an input indicating a selection of a complete ESSID, an ESSID prefix,
5 or a request for any available Wi-Fi network; and

6 automatically selecting:

7 the Wi-Fi network associated with the complete ESSID, if the input indicates the
8 complete ESSID,

9 one of the Wi-Fi networks associated with an ESSID having the ESSID prefix if the input
10 indicates selection of the ESSID prefix, or

11 one of the available Wi-Fi networks if the input indicates a request for any available Wi-
12 Fi network,

13 wherein the automatic selecting step is based on at least one of the group
14 consisting of signal strength in each Wi-Fi network, priority of each Wi-Fi network,
15 number of clients in each Wi-Fi network, and frame error rate in each Wi-Fi network, if
16 the input indicates selection of the ESSID prefix or any available Wi-Fi network.

1 26. (withdrawn) The method of claim 25, wherein the input is one of the group
2 consisting of data from a profile configuration and data manually entered by a user.